

Anticonvulsants

Anticonvulsants (also known as antiepileptic drugs, AEDs) are medications used primarily to prevent and control seizures. Many also have indications in neuropathic pain, mood stabilization, and other neurologic or psychiatric conditions.

Classification

- **Drug class:** Antiepileptic / anticonvulsant agents
- **ATC code:** N03A
- **Mechanisms of action (varies by drug):**
 - Sodium channel blockers (e.g., phenytoin, carbamazepine)
 - Calcium channel blockers (e.g., ethosuximide)
 - GABA enhancers (e.g., phenobarbital, gabapentin)
 - Glutamate inhibitors (e.g., perampanel)
 - Synaptic vesicle protein modulators (e.g., levetiracetam)

Clinical Indications

- **Epilepsy** (partial and generalized seizures)
- **Status epilepticus**
- **Neuropathic pain** (e.g., postherpetic neuralgia, diabetic neuropathy)
- **Bipolar disorder** (e.g., valproate, lamotrigine)
- **Migraine prophylaxis** (e.g., topiramate)
- **Off-label:** tinnitus, fibromyalgia, anxiety disorders

Common Anticonvulsants

Drug	Main Indication	Notes
Phenytoin	Focal seizures	Nonlinear kinetics; gingival hyperplasia
Valproic acid	Generalized seizures, bipolar disorder	Teratogenic; hepatotoxicity risk
Carbamazepine	Focal seizures, trigeminal neuralgia	Risk of hyponatremia, agranulocytosis
Lamotrigine	Broad-spectrum, bipolar disorder	Rash, risk of Stevens-Johnson syndrome
Levetiracetam	Broad-spectrum	Behavioral side effects
Topiramate	Epilepsy, migraine	Weight loss, cognitive slowing
Gabapentin / Pregabalin	Neuropathic pain, seizures	Renally excreted, well tolerated

Adverse Effects

- **Common:** Drowsiness, dizziness, ataxia, GI upset

- **Serious:** Stevens-Johnson syndrome, hepatotoxicity, blood dyscrasias, teratogenicity
- **Neuropsychiatric:** Mood changes, suicidal ideation (monitor closely)

Drug Interactions

- Many are **CYP450 inducers or inhibitors** (especially older agents)
- Monitor plasma levels if narrow therapeutic index (e.g., phenytoin, valproate)
- Avoid combinations that lower seizure threshold (e.g., certain antibiotics, antidepressants)

Monitoring

- Liver function tests (e.g., valproate, carbamazepine)
- CBC (e.g., carbamazepine, ethosuximide)
- Serum drug levels when indicated
- Mood and behavior (especially in adolescents)

Special Considerations

- Choose based on **seizure type, comorbidities, age, and pregnancy status**
- Some agents have **off-label uses** beyond epilepsy
- **Teratogenicity** is a major concern — avoid valproate in women of childbearing age unless no alternatives

Synonyms

- Antiepileptic drugs (AEDs)
- Antiseizure medications (ASMs)

Related Topics

- [Epilepsy](#)
- [Neuropathic pain](#)
- [GABAergic system](#)
- [Mood stabilizers](#)

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Last update: **2025/06/15 10:11**

